



Parks, Recreation & Libraries Department

Section 5:
FORMS & QUALITY EXPECTATIONS

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

PAGE 1 OF

PAGES

TO (OWNER):

APPLICATION NO.:

Distribution to:

- OWNER
- ARCHITECT
- CONTRACTOR
- INSPECTOR

PERIOD TO:

FROM (CONTRACTOR):

KA#

CONTRACT FOR:

CONTRACT DATE:

Application is made for Payment, as shown, in connection with the Contract. Continuation Sheet, AIA Document G702, is attached.

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY

Change Orders approved in previous months by Owner		TOTAL	ADDITIONS	DEDUCTIONS
Approved this Month Number	Date Approved			
		TOTALS		

Net change by Change Orders

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief, the Work covered by this Application for payment has been completed in accordance with the Contract Documents, that all previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: _____ County of: _____ day of _____, 20

Subscribed and sworn to before me this _____ day of _____, 20

Notary Public:

My Commission expires:

1. ORIGINAL CONTRACT SUM \$ _____
2. Net change by Change Orders \$ _____
3. CONTRACT SUM TO DATE (Line 1+2) \$ _____
4. TOTAL COMPLETED & STORED TO DATE \$ _____
(Column G on G702)
5. RETAINAGE:
 - a. % of Completed Work \$ _____
(Column D+E)
 - b. % of Stored Material \$ _____
(Column F on G703)
 Total Retainage (Line 5a + 5b or Total in Column 1 of G702) \$ _____
6. TOTAL EARNED LESS RETAINAGE \$ _____
(Line 4 less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate) \$ _____
8. CURRENT PAYMENT DUE \$ _____
9. BALANCE TO FINISH, PLUS RETAINAGE \$ _____
(Line 3 less Line 6)

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Architect/Inspector certifies to the Owner that to the best of the his/her knowledge, information and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

Inspector: _____ Date: _____

Project Manager

Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AMOUNT CERTIFIED \$ _____
(Attach explanation if amount certified differs from the amount applied for.)

REQUEST FOR FIELD INSTRUCTION

Distribution to:

- OWNER
- ARCHITECT
- CONTRACTOR
- INSPECTOR
- FIELD
- OTHER

CONTRACT FOR (project name, address):

RFI NUMBER:

TO: **City of Roseville**
Parks, Recreation & Libraries
Park Development Division
311 Vernon Street
Roseville CA 95678

INITIATION DATE:

CONTRACT DATE:

Category:

- Direction not given in Contract Documents
- Interpretation of contract requirements
- Conflict in contract requirements

Reference:

- Contract Drawings _____
- Shop Drawings _____
- Specifications _____

Subject:

Submitted By: _____ Possible Cost Impact: yes/no Possible Time Impact: yes/no

REPLY:

Answered By: _____ Date: _____ Page ____ of ____

CHANGE ORDER

AIA DOCUMENT G701

Distribution to:
 OWNER
 ARCHITECT
 CONTRACTOR
 INSPECTOR
 FIELD
 OTHER

CONTRACT FOR (project name, address):

CHANGE ORDER NUMBER:

TO (Contractor):

INITIATION DATE:

CONTRACT DATE:

You are directed to make the following changes in this Contract:

Not valid until signed by both the Owner and Architect/Inspector.

Signature of the Contractor indicates his agreement herewith, including any adjustments in the Contract Sum or Contract Time.

The original (Contract Sum) (Guaranteed Maximum Cost) was\$ _____
Net change by previously authorized Change Orders\$ _____
The (Contract Sum) (Guaranteed Maximum Cost) prior to this Change Order was\$ _____
The (Contract Sum) (Guaranteed Maximum Cost) will be (increased) (decreased) (unchanged) by this Change Order.
The new (Contract Sum) (Guaranteed Maximum Cost) including this Change Order will be\$ _____
The Contract Time will be (increased) (decreased) (unchanged) by _____ () Days.
The Final Contract Working date of this Change Order therefore is _____.

Architect/Inspector

Contractor

Authorized:

City of Roseville, Parks & Recreation Department
Owner

Address

Address

311 Vernon Street

Roseville, CA 95678

By: _____

By: _____

By: _____

Date: _____

Date: _____

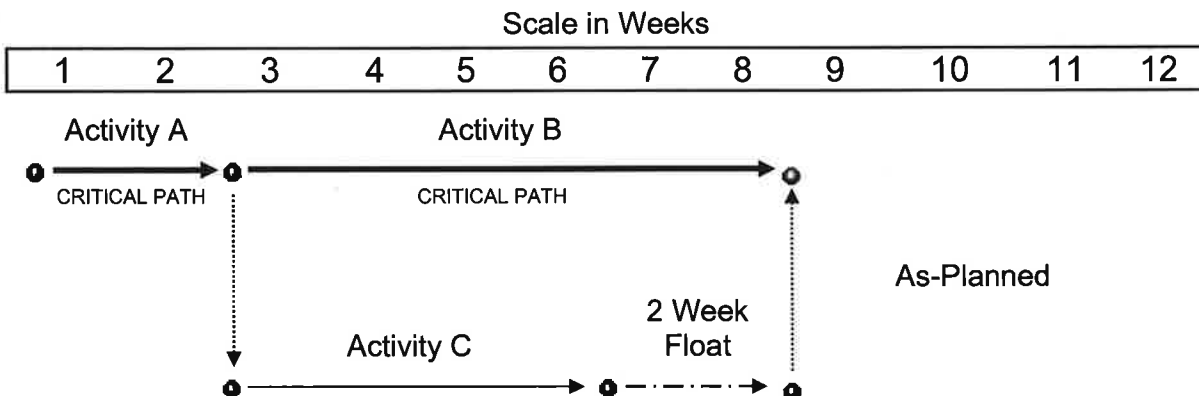
Date: _____

Project Schedule Sample

Checklist of Preparation of CPM Schedules

1. The structural breakdown of the project.
2. The types of work to be performed and the labor trades involved.
3. Permit requirements.
4. Procurement, fabrication, delivery, installation and test activities for major materials and equipment.
5. Submittal and approval of shop and working drawings and material samples.
6. Availability and access to work areas.
7. Procurement and delivery of owner-furnished equipment.
8. Interfaces and dependencies with preceding, concurrent and follow-up contractors (and their subcontractors, if any).
9. Availability of workforce and special skills required.
10. Material and equipment restrictions and availability.
11. Distance to and from the jobsite for the labor force, the delivery of materials and the company's personnel.
12. Potential utility interruptions.
13. Temporary construction utility storage space.
14. Laydown space and storage space.
15. Environmental controls.
16. Special regulations.
17. Climate considerations.
18. Special construction equipment and techniques.
19. Interim milestone dates.
20. Contingency plans for critical events.
21. Any other significant elements peculiar to the project in question.

Sample Contemporaneous Time Frame Analysis



CITY OF ROSEVILLE PARK IMPROVEMENT INSPECTION RECORD

Park Name: _____

Address
Contractor

***Building, Public Works (PW) and Environmental Utilities (EU) must sign this card in addition to the Building Inspection Card.**

For Building Construction Contact Building Department	Date	Inspector
Ground Plumbing		
Service Grounding		
Foundation/Forms		
Wire/Membrane		
Joist or Girders		
Floor Insulation		
Ground Mechanical		
Roof Shear		
Wall Shear		
Rough Mechanical		
Rough Plumbing		
DWV		
Rough Electrical (Walls)		
Rough Framing (Walls)		
Roof Framing/Trusses		
Insulation		
Lath		
Scratch Coat		
Sheet Rock Nail		
Roof Sheathing		
Exterior Shear Nail		
Handicap Access		
DO NOT COVER UNTIL ABOVE HAVE BEEN ACCEPTED.		

For Utilities Construction	Contact	Date	Inspector
Water (Street to R/W) (R/W to Building) *	EU		
Sewer, incl. TV test (Street to R/W) (R/W to Building) *	EU		
Recycled Water	EU		
Water (Building)	Bldg		
Sewer (Building)	Bldg		
Domestic Water (R/W to DF)	EU		
Domestic Water (DF)	Bldg		
Electrical (Street to transformer)	Electric		
Electrical (Transformer to building/lights)	Bldg		
Irrigation Mainline	Parks		
DO NOT COVER UNTIL ABOVE HAVE BEEN ACCEPTED.			
PRESSURE TEST AND APPROVAL REQUIRED UPON COMPLETION OF COMPACTION			
<small>*Confirm Inspecting Department at Pre-Construction Meeting</small>			

ACCEPTED PLANS MUST BE ON THE JOBSITE OR INSPECTIONS WILL NOT BE MADE.

THIS INSPECTION CARD MUST BE POSTED IN A CONSPICUOUS PLACE VISIBLE FROM THE STREET.

CONTRACTORS WILL BE RESPONSIBLE FOR ALL UTILITY BILLS INCURRED PRIOR TO FINAL APPROVAL/ACCEPTANCE.

City Department List

Department	Phone Number	Fax Number
Parks	(916) 774-5748	(916) 746-1759
Engineering	(916) 774-5339	(916) 774-5379
Electric	(916) 774-5600	(916) 784-3797
Environ. Utilities	(916) 774-5770	(916) 774-5690
Building*	(916) 774-5333	(916) 774-5394
Fire	(916) 774-5800	(916) 774-5810
Police	(916) 774-5000	(916) 781-2344

*Request for inspection must be called prior to 3:30pm, Monday through Friday, in order to be scheduled for the next business day.

For Park Improvements	Contact	Date	Inspector
Rough Grading	Parks		
Storm Drain	Parks		
Drain & Manhole locations	Parks		
Electrical Box location	Parks		
Depth of trenches i.e. SD, SS Irrigation Mainline	Parks		
Compaction of trenches, i.e. SD, SS, Irrigation Mainline	Parks		
Play Area Drainage	Parks		
Irrigation Mainline, incl. Pressure test, Trace wire test & Thrust blocks	Parks		
Swing Joints (sample)	Parks		
Flow Meter	Parks		
Shade Shelters	Bldg		
Structural Footings for fencing taller than 6' (backstops, netting, etc.)	Bldg		
DO NOT COVER UNTIL ABOVE HAVE BEEN ACCEPTED			
Compaction tests for hardscape	Parks		
Hardscape layout	Parks		
Preliminary finish grading	Parks		
Overall ADA compliance	Parks		
ADA Compliance to Structure/Bldg	Bldg		
Concrete Forms (prior to pouring)	Parks		
Concrete Finish (sample)	Parks		
Concrete	Parks		
Electrical (Struct. Footings)	Bldg		
Grout Pack (for walls)	Parks		
Asphalt Paving	PW or Parks		

For Park Improvements	Contact	Date	Inspector
SWPPP	PW		
Plant Material (upon delivery)	Parks		
Plant Placement (prior to planting)	Parks		
Irrig. Head Coverage (prior to seeding)	Parks		
Site Furniture Locations (prior to installation)	Parks		
Sign Locations (prior to installation)	Parks		
Controller Installation & Programming (prior to final acceptance)	Parks		
DF- Plumbing	Bldg		
Bacteria Test	EU		

Other

For Park Improvements	Contact	Date	Inspector

Comments

This completed inspection record shall be submitted to the Parks Department Project Manager prior to final acceptance of the project.

Final Sign Off

_____ Parks Inspector

_____ Date

CITY OF ROSEVILLE STREETSCAPE INSPECTION RECORD

PROJECT NAME:

PROJECT ADDRESS:

CITYWIDE JOB #:

EN #:

CONTRACTOR (NAME & PHONE #):

FOREMAN (NAME & PHONE #):

**APPROVED PLANS AND PARKS CONSTRUCTION STANDARDS (CURRENT EDITION)
MUST BE PRESENT ON THE JOBSITE OR INSPECTIONS WILL NOT BE MADE.
THIS INSPECTION CARD MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY BILLS INCURRED PRIOR TO FINAL
APPROVAL/ACCEPTANCE.**

CITY INSPECTOR TO DATE AND INITIAL EACH BOX BELOW AS EACH ITEM IS APPROVED FOR EACH SHEET/PAGE#

Irrigation Main Line	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #
24" Coverage (24" distance between top of pipe and finish grade)					
Trace Wire					
Control Valve Wires (2 extra)					
Saddle Taps					
Control Valves (gate/ball valve & union)					
Quick Coupler					
Gate Valves					
Reclaimed Water Tape					
Thrust Blocks (48 hrs. before MPT)					
Sleeves					
Mainline Pressure Test (MPT)					
Backfill & Compaction					

DO NOT COVER UNTIL ALL OF THE ABOVE IS ACCEPTED

Irrigation Laterals	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #
18" Coverage (18" distance between top of pipe and finish grade)					
Swing Arms					
Spray Heads					
Sleeves					
Backfill & Compaction					

DO NOT COVER UNTIL ALL OF THE ABOVE IS ACCEPTED

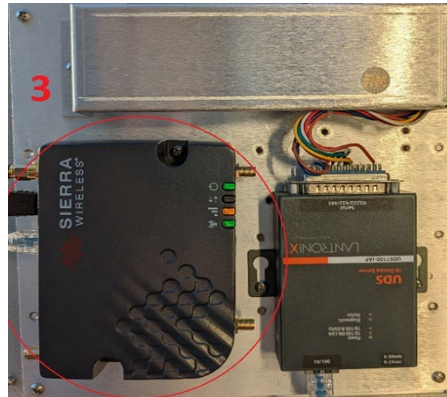
Valve Boxes	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #	Sheet/Page #
Valve Boxes					
Permanently Branded & Tags					

Calsense Controller - Third Party Communications Installation

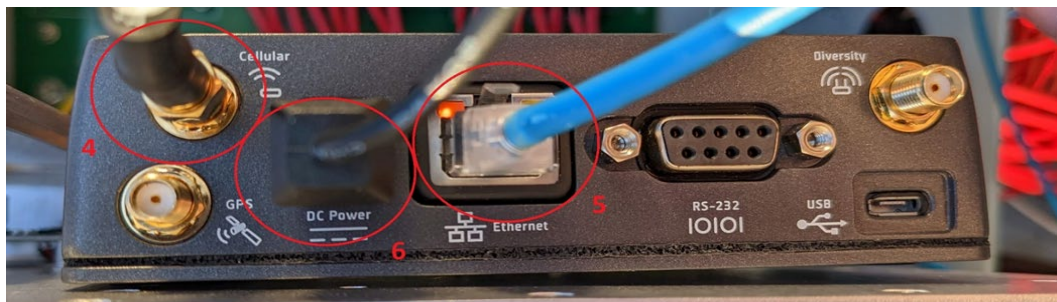
1. Ensure all Calsense components are installed and functional. Power down the controller.
2. Ensure the GR Stubby antenna is mounted on top of the controller. If it is not mounted, a 1/2" hole must be drilled to insert the antenna into the top right-hand corner of the cabinet. (see picture)



3. Attach Sierra Wireless Airlink device to the rear of the Calsense control board, next to the pre-installed Calsense modem. Ensure enough space is given for the power and ethernet connectors. (see picture)



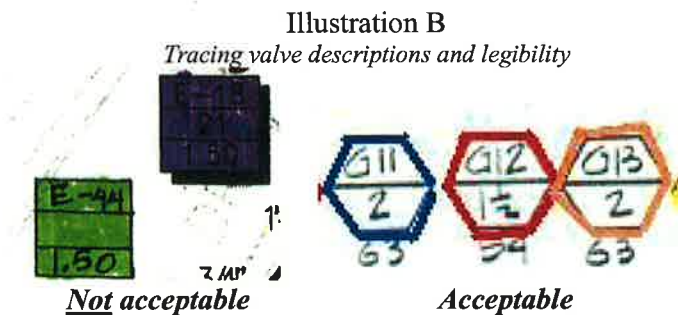
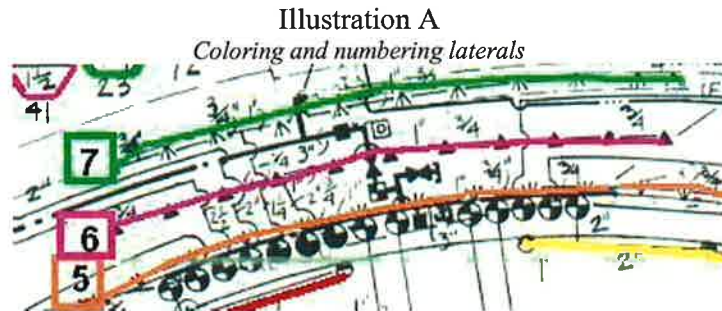
4. Attach GR Stubby antenna cable to Airlink device on "Cellular" port. (see picture)
5. Attach ethernet cable to the "Ethernet" ports on both the Airlink device and Calsense modem. (see picture)
6. Attach the AC adapter to the "DC Power" port on the Airlink device, then plug into one of the power outlets on the lower half of the controller. (see picture)



7. Power on the controller. The power light on the Airlink device should illuminate.
8. Contact site inspector to activate wireless service. This should be done at least one week prior to the Calsense controller inspection.

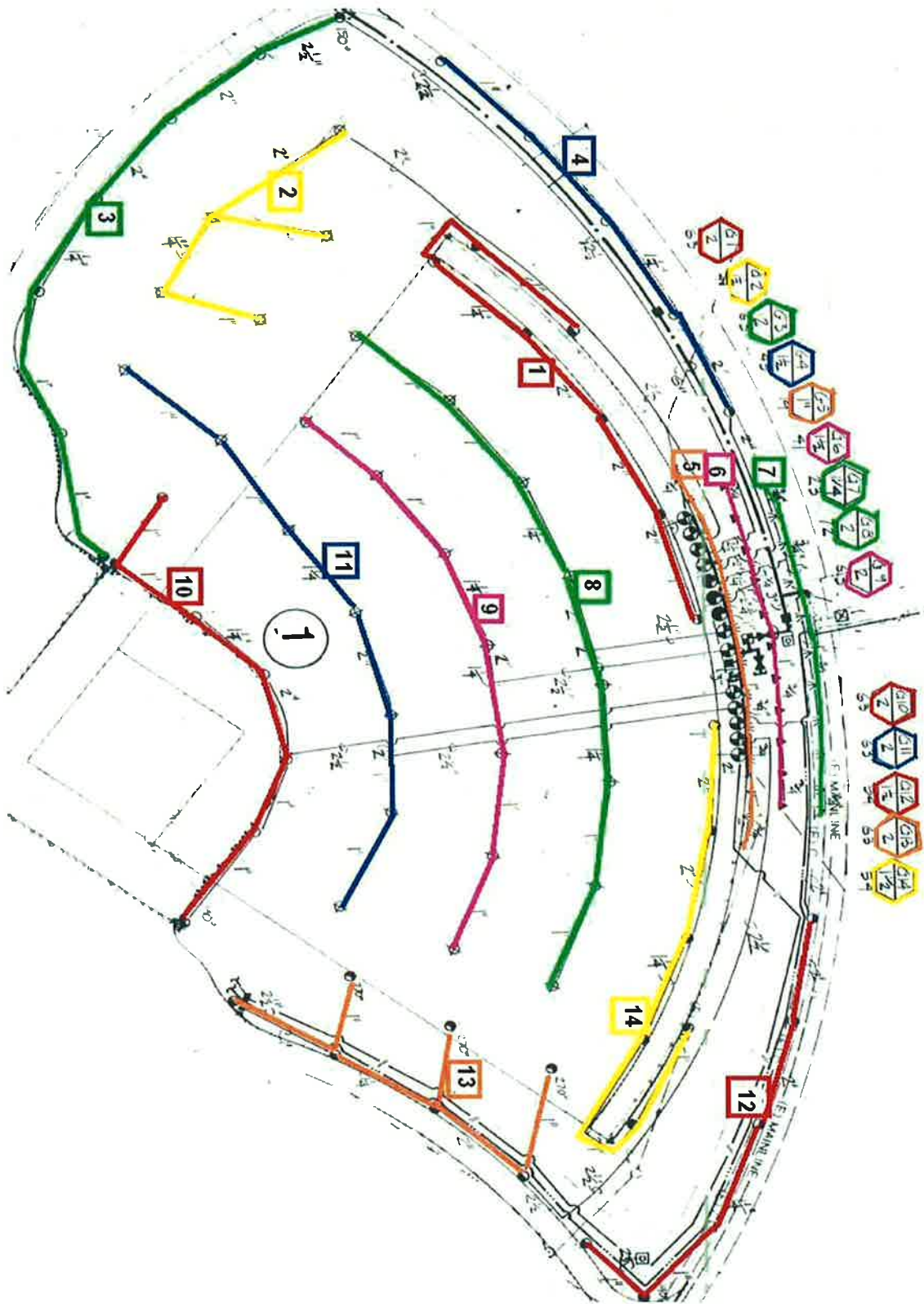
Irrigation Color Laminate Schematic Example

1. A minimum of 5 colors should be used, and separated so no adjoining laterals are the same color.
2. Laterals shall be traced in a manner that reflects the actual pipe installation, and to include all heads. In cases where Nettafim is used, the area covered by the valve should be outlined. (*see illustration A*)
3. Valve descriptions shall be outlined with the same color as the lateral it runs. DO NOT color in or cover the valve description with color. The valve number shall also be printed at/on the actual lateral. (*see illustration B*)
4. Valve descriptions should be of a size and quality that is easily legible (More than one sheet may be required for larger areas).
5. Valve descriptions shall accurately reflect the valve number, size and flow rate as it is installed.



**See complete example on next page*

Irrigation Color Laminate Schematic Example



***Not to scale

Controller Name

Station	In Use	Flow Rate (gpm)			Size (sq. ft.)	Precipt Rate (in/hr)	Description
1	<input checked="" type="checkbox"/>	1					
2	<input checked="" type="checkbox"/>	1					
3	<input checked="" type="checkbox"/>	1					
4	<input checked="" type="checkbox"/>	1					
5	<input checked="" type="checkbox"/>	1					
6	<input checked="" type="checkbox"/>	1					
7	<input checked="" type="checkbox"/>	1					
8	<input checked="" type="checkbox"/>	1					
9	<input checked="" type="checkbox"/>	1					
10	<input checked="" type="checkbox"/>	1					
11	<input checked="" type="checkbox"/>	1					
12	<input checked="" type="checkbox"/>	1					
13	<input checked="" type="checkbox"/>	1					
14	<input checked="" type="checkbox"/>	1					
15	<input checked="" type="checkbox"/>	1					
16	<input checked="" type="checkbox"/>	1					
17	<input checked="" type="checkbox"/>	1					
18	<input checked="" type="checkbox"/>	1					
19	<input checked="" type="checkbox"/>	1					
20	<input checked="" type="checkbox"/>	1					
21	<input checked="" type="checkbox"/>	1					
22	<input checked="" type="checkbox"/>	1					
23	<input checked="" type="checkbox"/>	1					
24	<input checked="" type="checkbox"/>	1					
25	<input checked="" type="checkbox"/>	1					
26	<input checked="" type="checkbox"/>	1					



making water work

since 1986

Controller Name

Station	In Use	Flow Rate (gpm)			Size (sq. ft.)	Precipit Rate (in/hr)	Description
27	<input checked="" type="checkbox"/>	1					
28	<input checked="" type="checkbox"/>	1					
29	<input checked="" type="checkbox"/>	1					
30	<input checked="" type="checkbox"/>	1					
31	<input checked="" type="checkbox"/>	1					
32	<input checked="" type="checkbox"/>	1					
33	<input checked="" type="checkbox"/>	1					
34	<input checked="" type="checkbox"/>	1					
35	<input checked="" type="checkbox"/>	1					
36	<input checked="" type="checkbox"/>	1					
37	<input checked="" type="checkbox"/>	1					
38	<input checked="" type="checkbox"/>	1					
39	<input checked="" type="checkbox"/>	1					
40	<input checked="" type="checkbox"/>	1					
41	<input checked="" type="checkbox"/>	1					
42	<input checked="" type="checkbox"/>	1					
43	<input checked="" type="checkbox"/>	1					
44	<input checked="" type="checkbox"/>	1					
45	<input checked="" type="checkbox"/>	1					
46	<input checked="" type="checkbox"/>	1					
47	<input checked="" type="checkbox"/>	1					
48	<input checked="" type="checkbox"/>	1					



Coverage Tests and Irrigation Audits for City of Roseville Parks and Streetscapes

Purpose:

- Maximize irrigation water efficiency by ensuring proper installation and functioning of irrigation system as designed.
- Analyze water requirements and irrigation use in the context of each site's unique conditions.
- Develop irrigation schedules based on water requirements, quality and availability.
- Make maintenance recommendations to keep the irrigation system working reliably and cost effectively.

Coverage Tests:

- Prior to planting, the Contractor shall perform a coverage test to confirm that water coverage is complete and adequate, and produces no overspray onto hardscapes.
- Performed on the entire irrigation system and in the presence of the Parks Inspector.
- The irrigation system must be connected to the City water system through the water meter. Temporary connections are not allowed.
- For park projects with turf:
 - Survey of the Distribution Uniformity (Low Quarter) of each irrigation zone containing turf to be performed prior to planting of turf.
 - The irrigation system must be 100% complete, including functionality of the irrigation controller and booster pump, if present.
 - Accurately record catch can results mapped onto the irrigation sheet(s)
 - Reported deficiencies in Distribution Uniformity may require corrective measures prior to approval of turf planting.

Irrigation Audits:

- A landscape irrigation audit shall be performed after all landscape and irrigation is installed and 100% complete.
- All landscape irrigation audits shall be conducted by a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
- The water audit shall conform to the specific water audit requirements of the City of Roseville Environmental Utilities Department, and any supplemental requirements from the City of Roseville Parks, Recreation & Libraries

Department. The contractor shall submit a comprehensive landscape irrigation audit. This shall include, but is not limited to:

- A completed Field Audit Submission Package **(City of Roseville provided forms only)**
- Complete system evaluation, including site conditions, system and flow data.
- Scheduling parameters used to set the irrigation controller.
- An Irrigation schedule for the landscape provided to the owner.
- A minimum of 25% of all zones shall be audited. The 25% minimum shall be a representative sample of each irrigation method present (i.e. Rotors, bubblers, rotary nozzles, drip, etc.), and is in addition to any turf zones audited during the coverage test.
- Any deficiencies noted in the audit report such as, but not limited to, run-off, overspray, obstruction of spray patterns, etc., shall be corrected and signed off as such by the original irrigation auditor prior to submission of the report. Do not submit audit reports with uncorrected deficiencies.

Best Management Practices for Preparing for a Water Audit

System tune-up	<ul style="list-style-type: none"> ● Level and adjust sprinkler heads flush with finish grades or as outlined in the Parks Construction Standards. ● Flush all nozzles, unplug any plugs. ● Adjust spray patterns to eliminate overspray over hardscapes, fences and walls. ● Double check all heads are matched precipitation rates per station.
<p>Calculate correct run times.</p> <p>Develop water schedules based on weather and/or fine tune the water schedules</p>	<ul style="list-style-type: none"> ● Recognize that each station's performance will vary. Adjust schedules outlined in the approved plans accordingly. ● Reflect changes in actual site conditions and microclimates. ● Make notations of schedule adjustments on the as-built plans.
Test operating pressures	<ul style="list-style-type: none"> ● Test pressure at the point of connection (after the backflow), middle of the system and at the end of the system. ● Consider pressure changes at build-out.

**excerpted from "Certified Landscape Irrigation Auditor" book by the Irrigation Association.*

Water Audit Checklist: A Guide to Preparing For and Conducting an Audit

Site Name: _____ Date: _____

Auditor: _____

Controller ID #: _____ Total # of Stations: _____

Station #:						
Plant Material Type (T= Turf; L= Landscaping)						
Sprinkler Type (R=Rotor, S = Pop-Up Spray, W = water efficient –drip, sub surface, micro, mp rotator, etc.)						
Observed Problems:						
Valve Malfunctions						
Low Pressure						
High Pressure						
Tilted Sprinkler Heads						
Spray Deflection						
Sunken Sprinkler Heads						
Worn or Broken Sprinkler Heads						
Missing Sprinkler Heads						
Unmatched Precipitation Nozzles						
Plugged Equipment						
Arc Management						
Low Sprinkler Drainage						
Leaky Seals or Fittings						
Lateral or Drip Line Leaks						
Slow Drainage or Ponding						
Thatch or Roots of Mature Plantings impacting water Infiltration						
Compaction/Run-Off						
Improper Zoning/Microclimate						
Lack of Adequate Flows						
Run Time Length						
Run Time Cycles						
Run Time Days/Week						
Flow Sensors Installed/Functioning						
Pressure After Backflow						
Pressure at Middle of System						
Pressure at Last Sprinkler in System						
Comments:						

Root Management Cue Card

Consistent root management in the nursery promotes structurally stable and healthy trees in the landscape. Improperly managed root balls can form permanent defects, such as circles and bends on the periphery. Follow these guidelines for managing roots to reduce defects on young trees.

The root ball should be inspected at each shift to a larger container starting with the liner (the young tree in its original container, Fig. 1A). Root pruning on the periphery and bottom of liner root ball removes most defects (Fig. 1B).

Cut a root back to the point just behind the bend (Fig. 2A) to remove the bend. Cutting the root at a point after the bend (Fig. 2B) is less effective because the bend remains. Roots that grow down and around the sides of the liner root ball become woody as they enlarge in diameter (Fig. 3, right). These woody roots retain their original deflected orientation, which can cause health and stability problems for the tree.



Figure 3. A quality root system develops if the roots of liners (see Fig. 1) are properly pruned when the tree is shifted to a larger container (left). A poor root system develops when deformed roots are not pruned during shifting (right).

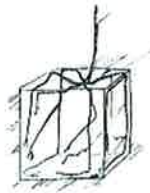


Figure 1A. Roots growing on the periphery of the liner.



Figure 1B. Pruning the liner to remove roots growing on the periphery.

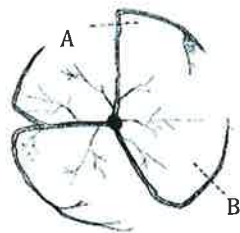


Figure 2. Cut roots at (A) to form new roots that grow away from the trunk (see Fig. 5). Do not cut roots at (B), since the defects can regrow.

Pruning a tree's roots when shifting it to a larger container or before planting it in the landscape improves the root system because it cuts roots back to straight, radial root segments attached to the trunk (Fig. 4). A pruned root ball will be smaller than it was before pruning. Certain types of containers reduce root growth on the periphery of the root ball, so less root pruning may be needed. In some instances, root defects develop further inside the root ball. In these cases, prune root balls deep enough to remove defects.

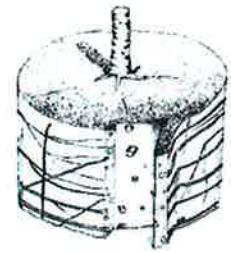


Figure 4. Pruning the roots on the periphery of a container root ball.

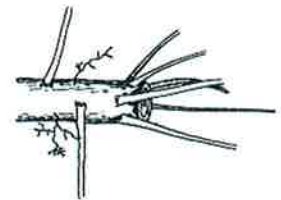


Figure 5. Roots growing from a cut root.

In the weeks and months following root pruning, new roots grow away from the cut ends in a fanlike manner (Fig. 5). These new roots provide greater stability and should not girdle the tree.

Whether root defects can be corrected depends on their location in the root ball, severity, tree species, water management, size of roots, and time of year. It is easier to cut defective roots when a tree is younger than when it is older (Fig. 6).

Ideally, roots should be inspected and defective roots pruned at each shift to a larger container, reducing the need to heavily prune larger roots.

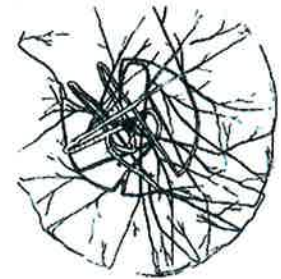


Figure 6. The liner, 5-gallon, and 15-gallon containers left an imprint on this root system. These root defects would be difficult to correct at this stage.

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Tree Training Cue Card

Trees that grow to be large are more structurally sound and cost-effective to maintain when trained with a central dominant leader that extends 30 feet or more into the crown (Fig. 1, left). Vigorous, upright branches and stems that compete with the central leader can become weakly attached (Fig. 1, right).

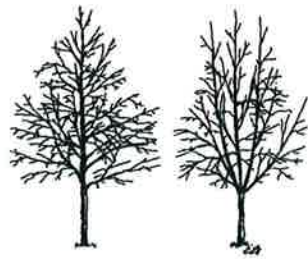


Figure 1. Good tree structure (left); poor structure (right).

Trees with branches spaced along the central leader, or trunk, (Fig. 1, left) are stronger than trees with branches clustered together (Fig. 1, right). Prune newly planted trees to one central leader by shortening competing stems (Fig. 2). All branches and stems should be shorter than the central leader after pruning is completed (Fig. 2, right).

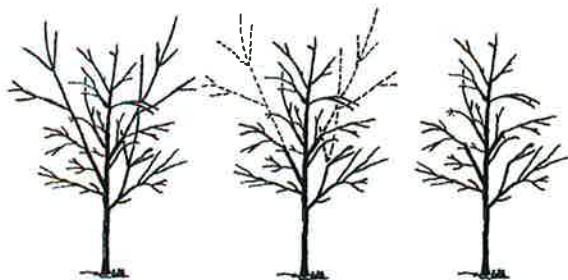


Figure 2. Shorten competing stems to improve structure.

Shorten or remove branches that are larger than half the trunk diameter at planting and every few years thereafter. Shorten them by cutting back to a live lateral branch (Fig 3, top drawing). This lateral branch should be pointed away from the trunk and it should not be growing upright. The central leader should be more visible in the crown center after pruning. Only large-diameter branches need to be pruned because they compete with the leader and could be weakly attached (Fig 3, L). Small branches (Fig. 3, S) do not need pruning because they will not compete with the leader.

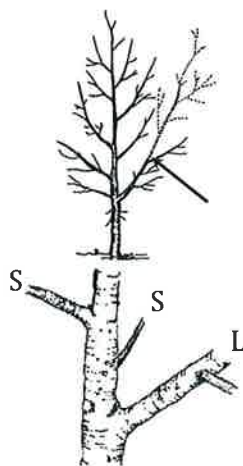


Figure 3. Only large branches need pruning (L). Small branches (S) do not need to be pruned.

Shorten the largest low branches when the tree is young to keep them small (Fig. 4). These shortened branches may be removed later for clearance; removing small branches creates smaller wounds with less likelihood of decay.

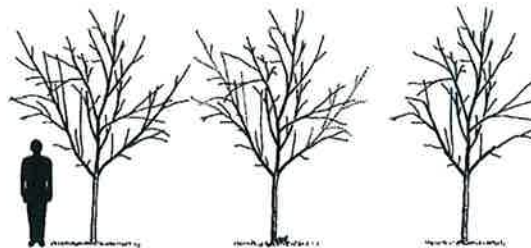


Figure 4. Shorten larger low branches to encourage growth in the leader and improve tree structure.

The best way to shorten large or long stems and branches is to cut them back to a live lateral branch (Fig 5). This slows growth on the pruned parts and encourages growth in the dominant leader creating sound structure.



Figure 5. Reduce a stem back to a live lateral branch to slow its growth.

Remove larger branches by making three cuts (Fig. 6). This prevents the bark from peeling or splitting off the trunk below the cut. Make the final cut back to the branch collar (enlarged area around union of branch and trunk).

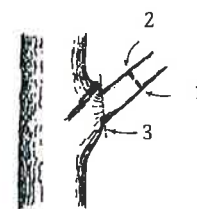


Figure 6. Remove large branches using three cuts.

Structural Pruning Checklist

1. Develop and maintain a central leader.
2. Identify the lowest branch in what will become the permanent crown.
3. Prevent branches below the permanent crown from growing larger than half the trunk diameter.
4. Space main branches along the central leader.
5. Reduce vigorous upright stems back to lateral branches.

Pruning Safety

Prune from the ground using proper tools and safety equipment. Do not prune near power lines.

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Tree Planting Cue Card

Selecting quality trees: Planting quality trees begins by choosing vigorous, structurally sound trees from the nursery. Strong trees have straight roots, a thick trunk with taper, and a good branch structure appropriate for the species (Fig. 1). The root collar (the uppermost roots) should be in the top 2 inches of the root ball.



Figure 1. Quality tree ready for planting.

Digging the hole: A firm, flat-bottomed hole will prevent trees from sinking. Dig the hole only deep enough to position the root collar even with the landscape soil surface (Fig. 2). Use a rototiller or shovel to loosen soil in an area three times the size of the root ball. This loose soil promotes rapid root growth and quick establishment.

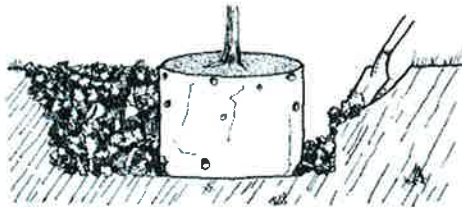


Figure 2. Loosening soil in a large area around the root ball allows for rapid root growth and quick establishment.

Installing the tree:

Remove soil and roots from the top of the root ball to expose the root collar; cut away any roots that grow over the collar (Fig. 3). Also cut any roots that circle or mat along the sides and bottom of the root ball (Fig. 4). The root collar should be even with the landscape soil after planting (see Fig. 3). Backfill with soil removed from the hole. Minimize air pockets by packing gently and applying water. Build a berm 4 inches tall around the rootball to help force water through the root ball. Enlarge the berm as the tree establishes.



Figure 3. Remove soil and roots growing over the root collar (A) and place collar level with soil surface (B).

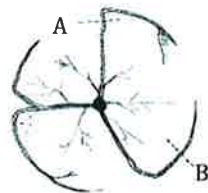
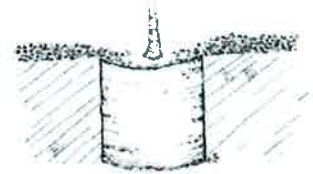


Figure 4. Cut roots at (A) to form new roots that grow away from the trunk. Do not cut roots at (B), since the root defects will regrow.

Staking: Staking holds trees erect and allows the root ball to anchor. Secure the trunk at the point where the tree stands straight. A second stake tied directly to the trunk made of bamboo may be required to straighten the upper trunk.

Mulching: A layer of organic mulch, such as leaf litter, shredded bark, or wood chips, helps protect tree roots from temperature extremes and conserves soil moisture. Mulch also helps prevent grass from competing with the tree for water and nutrients. The mulched area makes it easier to operate mowers and weed eaters without hitting the trunk and compacting soil. Apply mulch to a depth of 3 to 4 inches (slightly thinner on top of the root ball).



Irrigating: Consistent irrigation is critical for establishment.

1. Apply about 3 gallons irrigation per inch of trunk diameter to the root ball 2 or 3 times a week for the first growing season.
2. Increase volume and decrease frequency as the tree becomes established.
3. Weekly irrigation the second year and bimonthly irrigation the third year should be sufficient for establishment.
4. Once established irrigation requirements depend on species, climate and soil conditions.
5. Irrigation devices should be regularly checked for breaks and leaks.

Pruning: Training young trees promotes structurally sound growth and overall tree health. Cut back or remove codominant stems (stems that compete with the central leader) to encourage growth in the central leader (below).

Before Pruning



After Pruning



ReLEAF



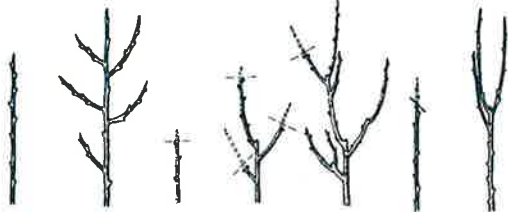
Tree Quality Cue Card

Shade trees that grow to be large should have one relatively straight central leader. Heading the tree is acceptable provided the central leader is retrained.

Desirable

Desirable

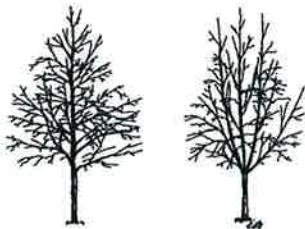
Not desirable



Main branches should be well distributed along the central leader, not clustered together. They should form a balanced crown appropriate for the cultivar or species.

Desirable

Not desirable



Desirable

Not desirable

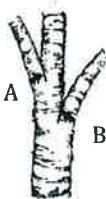
The diameter of branches that grow from the central leader, or trunk, should be no larger than two-thirds (one-half is preferred) the diameter of the trunk measured just above the branch.



Desirable

Not desirable

The largest branches should be free of bark that extends into the branch union, known as included bark (see A and B).



Desirable

Not desirable

Temporary branches particularly on trees less than 1 inch caliper should be present along the lower trunk below the lowest main branch. These branches should be no larger than 3/8 inch in diameter.

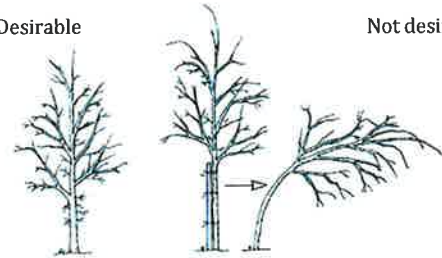


The trunk should be free of wounds, sunburned areas, conks (fungal fruiting bodies), wood cracks, bleeding areas, signs of boring insects, cankers, or lesions. Properly made recent pruning cuts are acceptable.

The trunk caliper (thickness) and taper should be sufficient so that the tree remains vertical without a stake.

Desirable

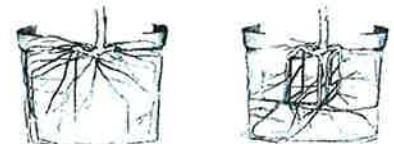
Not desirable



The root collar (the uppermost roots) should be within the upper 2 inches of the soil media (substrate). The root collar and the inside portion of the root ball should be free of defects, including circling, kinked, and stem girdling roots. You may need to remove soil near the root collar to inspect for root defects.

Desirable

Not desirable



The tree should be well rooted in the soil media. Roots should be uniformly distributed throughout the container. The tree's structure and growth should be appropriate for the species or cultivar. When the container is removed, the root ball should remain intact. When the trunk is lifted, both the trunk and root system should move as one.

The root ball should be moist throughout at the time of inspection and delivery. The roots should show no signs of excess soil moisture as indicated by poor root growth, root discoloration, distortion, death, or foul odor. The crown should show no signs of moisture stress as indicated by wilted, shriveled, or dead leaves or branch dieback.

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STRUCTURAL PRUNING GUIDELINES OF NEW TREES

- Structural prune tree before you plant it.
- Develop and/or maintain a central leader.
- Remove dead branches at the point of attachment.
- Remove diseased, decayed, broken, weakly attached, and/or crossing branches.
- Reduce or remove co-dominant leaders and branches.
- Space main branches along one central leader.



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UPDATED JUNE 2015

Tree and Plant Root Management Standards & Quality Expectations

Parks, Recreation & Libraries



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GIRDLING / CIRCLING ROOTS

If trees are held too long in containers / boxes roots are not able to spread out to the sides anymore and will be deflected by the sidewalls of the container. Roots will then start to girdle or circle around the container walls. If a tree is planted with a circling or girdling roots, the roots will continue to circle and girdle; the roots will not be able to extend to the sides. Trees planted with a girdled or circled root system will also create a structural instability in the future and the trees will fall over within 5 years of planting. Proper root pruning will assure safe, sound and healthy trees.

EXAMPLES



ROOT PRUNING GUIDELINES PRIOR TO PLANTING

Root prune root ball on all four sides by shaving/cutting by using a sharp hand pruning saw. Start at the top of the root ball and slice down to the bottom like a cake; slice/shave all 4 sides.



On a 15 gal tree/shave at least 1-1.5 inches off the root ball on all 4 sides.



On a 24" or 36" box tree cut/shave at least 2 inches of root ball on all 4 sides.



Cut and remove all remaining/girdling roots with a sharp pruning shear.



This process will remove any girdling and circling roots deflected by the container wall.

Spread all roots of the sliced root ball to the side to allow proper root development.

ROOT COLLAR INSPECTION

Most often the root collar is buried with soil by the nursery. The root collar (uppermost roots) should be within the upper two inches of soil media and should be free of defects such as circling or girdling roots. You may need to remove some soil in order to find and inspect the root collar. The root collar must be visible before the tree can get planted. Do not bury root collar when planting the tree.



TREE PLANTING & MULCHING

1. Spread out roots to the side of the planting hole.
2. Plant tree at least 3 inches above grade on mound to prevent bowl effect.
3. The tree's beginning root flare must be located at top of grade with installed sod.
4. Water tree when planted.
5. Stake tree.
6. Place mulch around tree, 4 ft. in diameter, with a thickness of 4 inches. Stay 6 inches away from tree trunk to prevent stem decay.

EXPECTATIONS

The City of Roseville's Parks, Recreation & Libraries Department joins you in your efforts in designing parks that are creative, innovative and functional. Following is a list of expectations, which assist us in accomplishing these goals:

QUALITY

Quality is a priority for Roseville parks. We define quality by:

1. Designs include a signature element that separates the park from others. These help our residents to identify with our parks without having to know the park name.
2. Designs that are functional, addresses long term maintenance concerns and are aesthetically pleasing.
3. Designs that meet federal, state and local codes and ordinances.
4. Construction documents that are complete, thorough and easily read with particular attention to grading and irrigation.

ON TIME

Deadlines and milestones are mutually set and met. Communication to anything contrary is provided.

ON BUDGET

Accurate cost estimating is provided and reflective of the most current industry costs. Designs meet the stipulated budget.

INNOVATIVE

To be innovative does not automatically equal high cost. Innovation and creativity can be found in all aspects of the project and can be found in paying attention to the details. Innovation can simply be in the form of finding new ways to accomplish a traditional outcome more effectively and more efficiently.

The expectations shown are only a small collection of samples of what the City of Roseville considers quality finish work. Please consult the Parks Construction Standards for a more detailed outline of design guidelines.

Design Standards & Quality Expectations

Parks, Recreation & Libraries



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OUR EXPECTATIONS



Ensure ADA access and path of travel and other code requirements.



Ensure grading considers mowers and on-going maintenance needs.



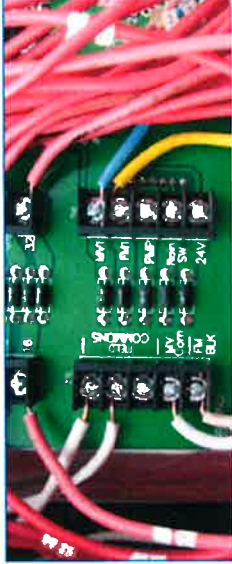
Ensure drains are appropriately located and slopes into the drains are not overly exaggerated nor too gradual.



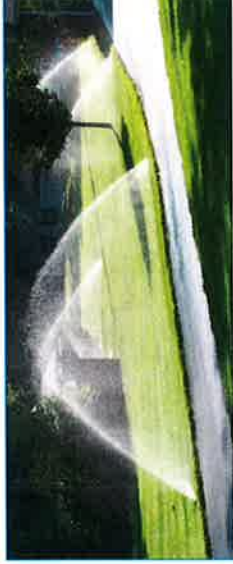
Site features consider heavy use, potential vandalism and misuse such as skate boards.



Play areas are attractive and contain interest.



Irrigation designs adhere to the standards outlined in the Parks Construction Standards.



Irrigation designs consider site specific constraints and compensate for these challenges.



Irrigation designs consider the most water efficient approach, takes full advantage of available technology and takes steps beyond meeting minimal requirements.



Landscaping offers good variety of sizes, textures and shapes as well as seasonal change.



Trees are selected specific for the space provided, eg, small tree species for a narrow planter, etc.



The City seeks knowledgeable, experienced and creative partners as our design consultants. We search for partners who are flexible, open to ideas and who are willing to push innovation forward by providing suggestions, ideas and solutions.

EXPECTATIONS

The City of Roseville's Parks & Recreation Department joins you in your efforts in building a successful park project. Following is a list of expectations, which pertain to this project:

PROJECT APPROACH

This project is a City project. Professional courtesy is to be displayed at all times. Professional courtesy can be defined as being a team member, displaying an interest in obtaining and performing quality work, a willingness to listen to other team member's opinions, accepting responsibility where the responsibility lies, and acknowledging that we all are pursuing the same goal, that is, to build the best park/project we can.

CORRESPONDENCE

All correspondence shall contain a cover sheet, transmittal or memorandum indicating the name of the recipient, the date and a summary of what is either being transmitted or requested. Typical forms are provided in the Parks Standards book, which shall be used during the course of construction.

DISCREPANCIES

Discrepancies between the plans/specifications and the Parks Construction Standards shall be immediately brought to the attention of the Project Manager. In most cases, the Parks Standards shall prevail over the project plans and specifications. Lack of notification shall place sole responsibility on the contractor without guarantee of City approval.

PRIOR NOTICE

Lack of prior notice for any item of work requiring inspection or review will result in a delay of work. Notice shall be given to the Project Manager a minimum of 48 hours in advance. Same day notices will not be accepted.

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Irrigation Construction Standards & Quality Expectations

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OUR EXPECTATIONS



Valve boxes aligned and square with hardscape. Boxes are set at 2-1/2" above finish grade in planting areas and 1-1/2" above finish grade in turf areas.



Valves placed centered in valve box, aligned square within the box, tagged and filled with drain rock.



Quick coupler valves set 2-1/2" above finish grade in planting areas, placed centered within the valve box and anchored with an angle iron, 36" long.



Backflow prevention device, meter and flow sensor are aligned.



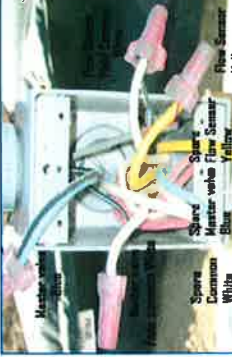
Irrigation heads at grade in planters and in turf areas.



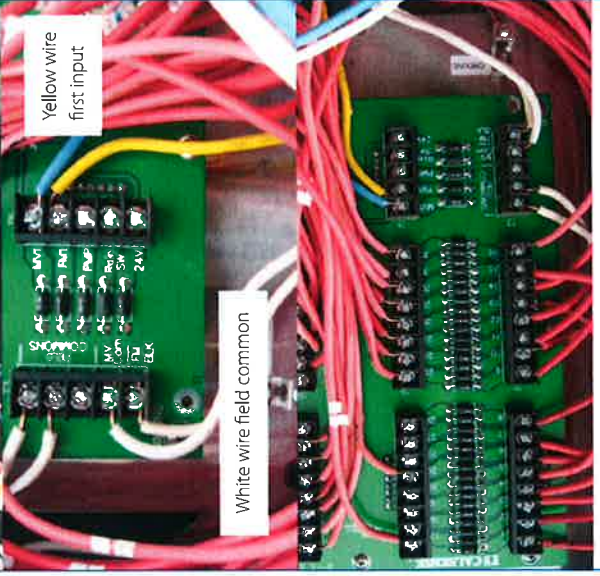
Irrigation enclosure contains equipment, neatly aligned. Manuals and irrigation station layouts are contained inside.



Ground rod 8' from control panel in irrigated areas.



Master valve wiring installed correctly.



Irrigation control wiring installed neatly and correctly.

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Landscaping Construction Standards & Quality Expectations

Parks, Recreation & Libraries



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OUR EXPECTATIONS



Scarify root ball on sides and bottom.



Plant shrubs 2 inches higher with soil over root ball.



Plant shrubs in a basin and place 2" mulch in basin.



Apply two inches of mulch in shrub/groundcover areas.



Space plants per plan.



Trees staked per the City standards.



Plant trees in a basin and place 2" of mulch in basin.

EXPECTATIONS

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Park Construction Standards & Quality Expectations

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OUR EXPECTATIONS



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Valves placed centered in valve box, aligned square within the box, tagged and filled with drain rock.



Quick coupler valves set 2-1/2" above finish grade in planting areas, placed centered within the valve box and anchored with an angle iron, 36" long.



Backflow prevention device, meter and flow sensor are aligned.



All posts are plumb, and fall zones are maintained at 8". Age appropriate signs are installed.



Picnic table and benches are horizontal and all bolts are tight. Seat heights are as specified. Concrete slobber is removed.



Irrigation enclosure contains equipment, neatly aligned. Manuals and irrigation station layouts are contained inside.



Electrical transformer and irrigation controller enclosure are aligned.



"Playground Rules" sign is located near all play areas and in plain view. The sign is durable and constructed of aluminum with vinyl lettering. The frame/posts are tubular steel powder coated to match play structure colors.



Vertical surfaces are consistent throughout. Vertical expansion joints are provided and are smooth with the finish surfaces. All edges have been eased at a consistent radius.



Medium broom finished concrete with clean, deep score joints spaced appropriately. No visible cracks or discoloration.

TREE SELECTION

The types of trees selected for planting is dependent on the space available, the urban forest inventory, and the specific plan. A specific plan has been developed with design guidelines outlining the types of preferred trees that help define the aesthetics of the area. Tree selections may be changed over time based on long term maintenance and safety concerns.



PLANT SELECTION

The types of shrubs and groundcovers are selected for aesthetics. Taller shrubs and hedges are planted to hide fences and walls. Smaller shrubs are selected to minimize the need for pruning. Perennials are selected for annual accent color, but without the need for annual replacement. Groundcovers are selected to provide green space while being cautious to not create trash collectors. Harsh routine pruning shortens the life span of shrubs, thus increasing long term costs.



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Street Landscape Standards & Quality Expectations

Parks, Recreation & Libraries



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PREFERRED PRUNING APPROACHES



✓ "Boxed" pruning along fences, sound walls and parking lot edges to create a continuous hedge.



✓ Plants in medians retain natural shapes, but clipped away from street pavement.



✓ Strapped leafed plants cut back in Fall only and only if they are deciduous species.



✓ Use the shrub's natural shape in the landscapes.

STREET TREE STANDARDS

Street Trees are to be:

- Pruned to ensure an overhead clearance over the street of 15';
- Pruned to ensure an overhead clearance of 10' over sidewalks.
- Limbs might be pruned when branches overhang adjacent property and pose impending property damage.

Trees will be removed:

- if the roots are or will be causing pavement damage;
- if the structural integrity of the tree is compromised;
- if the health of the tree is declining; or
- if the tree is dead.



PLEASE DO NOT



Prune shrubs in balls or squares if not next to fences, walls or parking lots.



Prune trees without appropriate arboricultural practices.



Prune evergreen plants.



Leave dead plants in place.